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MONTHLY PROGRESS REPORT
For July 1973

Title of Investigation:

An Interdisciplinary Analysis of Multispectral Satellite Data for Selected Cover Types in the Colorado Mountains, Using Automatic Data Processing Techniques.

Principal Investigator: R. M. Hoffer
SKYLAB EREP S398
Contract No. NAS9-13380

A. Overall Status and Progress to Date

A.1 Work during this reporting period (and the next) has involved collecting ground truth and making field observations in the task site. The cover type maps of the task site are currently being updated by INSTAAR personnel.

A.2 A comparison of ERTS and SKYLAB MSS characteristics has begun by initiating a study of ERTS frame 1317-17204, taken at 9:20 am on 5 June 73 or 90 minutes before the EREP pass of GT34/REV318. Two study areas have been geometrically corrected. Computer classification of this ERTS data is being done for major cover types at a scale of 1:24,000. Specific test fields within the task site will be chosen and field checked to facilitate this study.

B. Recommendations Regarding Project Objectives

B.1 The SL-2 S-192 data tapes (all channels) should be sent to LARS/Purdue as soon as possible. The data should be from GT34/REV318, 5 June 1973, from 1758:56/1759:36 GMT which includes task site 804293 after modification for SL-2. This area includes 40 sec. of data and will allow a study to be made for spectrally differentiating clouds from snow (the clouds are located in the southern portion of the imagery and necessitate obtaining this much data).

B.2 As indicated in the EREP Milestone Plan, recent work with digitized photography indicates the necessity for utilizing original photographic data for the microdensitometer work. It is strongly recommended that plans be developed to allow the original photographic data to be densitometered so that an accurate comparison of scanner and film data results can be obtained. If the duplicate photographic data could also be densitometered, this would allow an even better comparison to be obtained.

C. Expected Accomplishments During the Next Reporting Period

C.1 During the month of August, the work will stress collection of detailed field data in the test site area. Specific test areas

for use with the computer analysis of MSS and digitized photographic data will be designated and field checked. Over 100 such areas will be defined. Several members of both the INSTAAR and LARS' staff will be in the test site at the time of the EREP overpasses on 3 August to make field observations. Observations on characteristics of cover types and color and color IR photography will be obtained from light aircraft, while data on water temperatures and turbidity will be obtained from a boat on the Rio Grande Reservoir during a period of plus or minus 1 hour from the time of the SKYLAB overpass.

D. Significant Results

D.1 There are no significant results to report to date.

E. Summary of Future Efforts

E.1 Until S192 data from SL-2 becomes available, and the quality of this data has been evaluated and necessary data corrections have been made, work will center on the detailed analysis of ERTS data obtained on the same day that the SL-2 data was obtained. The overall quality of this ERTS data appears to be excellent with a good snow cover and major vegetative cover types being clearly defined. The results of this ERTS data analysis will provide a good base set of information concerning the accuracy of cover type mapping with the ERTS spectral channels. The same study area and detailed test sites will be utilized in the analysis of the S192 SKYLAB data.

F. Travel Plans for August

R. M. Hoffer to the test site. W. N. Melhorn, R. L. Frederking and S. Sinnock to the test site.

D. W. Levandowski and W. T. Lehman to the test site.

INSTAAR personnel to the test site.